



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,953	09/27/2001	Kevin Collins	10006728-1	4853

7590 01/21/2005  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

LE, DIEU MINH T

ART UNIT	PAPER NUMBER
----------	--------------

2114

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/966,953

Applicant(s)

COLLINS ET AL.

Examiner

Dieu-Minh Le

Art Unit

2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 November 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9, 11-19, 21-26, and 28-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19, 21-26, and 28-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Pri rity under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This Office Action is in response to the amendment filed November 16, 2004 in application 09/966,953.

2. Claims 1-9, 11-19, 21-26, and 28-29 are again presented for examination; claims 10, 20, and 27 have been cancelled.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-9, 11-19, 21-26, and 28-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable Parris (US Patent 6,408,406) in view of Archibald, JR. et al. (US Publication 2002/0184580 A1).

As per claim 1:

Parris substantially teaches the invention. Parris teaches:

- A method for monitoring performance of a storage device [fig. 4, abstract, col.2, lines 21-29 and col. 8, lines 18-33];

comprising:

- intercepting communications between a computer system and storage device [fig. 1, col. 1, lines 12-19 and col. 4, lines 43-53];

Art Unit: 2114

- analyzing intercepted communications relative to a threshold value for the performance of storage device [col. 2, lines 10-13, col. 2, lines 37-46, col. 6, lines 15-17 and col. 10, lines 3-7].

Parris does not explicitly teach:

- responding to a decline in the performance of storage device based on analyzed intercepted communications by automatically reallocating at least some data on storage device.

However, Parris does disclose capability of:

- performance threshold exceed certain level then the disk drive marked as failed disk drive [col. 2, lines 54-57].

In addition, Archibald explicitly teaches:

- A data information storage device having a monitoring, testing, predicting failure, and recovery capability [abstract, col. 1, par. 0001-0004 and 0013];

comprising:

- monitoring and testing performance of storage media [col. 1, par. 0013];

Art Unit: 2114

- *relocation data in responding to a result of damage or deterioration of performance of storage device [col. 2, par. 0016].*

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of Applicant's invention to apply the *relocation data in responding to a result of damage or deterioration of performance of storage device* as taught by Archibald in conjunction with the method for testing defective disk drive storing performance parameters for continuously logging problem during the operation of the disk drive as disclosed by Parris in order to enhance the storage device, memory programming efficiency (i.e., erasing, programming, accessing, processing, etc...). One of ordinary skill in the art would have been motivated to do so to improve the memory response time (i.e., data access to and from memory devices and computer devices), memory space allocation, memory process controlling, etc.... It would further obvious because by improving storage device or disk drive performance, the disk drive can be ensured of free of errors or failure in supporting its operation.

As per claims 2-4:

Art Unit: 2114

Parris further teaches:

- measuring access time for storage device [col. 2, lines 58-65, col. 6, lines 43-47, and col. 7, lines 52-62].
- correcting measured access time for system overhead [col. 8, lines 34-59].
- intercepting an error reported by storage device [col. 8, lines 4-15].

In addition, Archibald explicitly teaches:

- A data information storage device having a monitoring, testing, predicting failure, and recovery capability [abstract, col. 1, par. 0001-0004 and 0013];
- comprising:
- measuring access time for storage device [col. 3, par. 0026];
  - correcting measured access time for system overhead [col. 3, par. 0023 and 0025].

It would have been obvious to an ordinary skill in the art to realize both Parris' performance measure and Archibald's storage error detection and correction do deal with measuring and correcting access time for system storage. This is because by improving the storage's performance (i.e., error accessing,

Art Unit: 2114

detecting, correcting, and **data relocating**), the time for accessing the data storage can be optimized and enhanced in supporting the data processing, data storage, data analysis, data throughput with the computing data arena.

As per claims 5-6:

Parris further teaches:

- determining an access location [col. 3, lines 1-6] on storage device and an access frequency for data stored thereon, based on intercepted communications [col. 3, lines 7-12].
- determining an access location on storage device and an access duration for data stored thereon, based on intercepted communications [col. 3, lines 7-12].

In addition, Archibald explicitly teaches:

- A data information storage device having a monitoring, testing, predicting failure, and recovery capability [abstract, col. 1, par. 0001-0004 and 0013];

comprising:

- determining an access location on storage device and an access frequency for data stored thereon [col. 3, par. 0023 and col. 4; claim 5].

Art Unit: 2114

- determining an access location on storage device and an access duration for data stored thereon [col. 3, par. 0023].

It would have been obvious to an ordinary skill in the art to realize both Parris' performance measure and Archibald's storage error detection and correction do deal with access frequency and access duration for system storage. This is because by improving the storage's performance (i.e., error accessing, detecting, correcting, and **data relocating**), the frequency and duration of storage access must be analyzed and monitored by Parris and Archibald [**executing the frequency of storage access, Archibald, col. 4, claim 16**] in ensuring to optimizing the data access to and from storage device.

As per claims 7-8:

Parris further teaches:

- logging communication over time [col. 4, lines 50-52, col. 7, line 7-11];
- deriving threshold value based on logged communications [fig. 5, col. 4, lines 50-52, col. 7, line 7-11].

As per claims 9, 11-12:



Art Unit: 2114

Parris further teaches:

- responding to declining performance of storage device

comprise:

- automatically backing up data stored on storage device [fig. 3 col.5 , lines 26-52];
- defragmenting at least a portion of storage device [col. 5, line 39 through col. 6, line 14];
- based on usage patterns of data [fig. 3 and 5, col. 1, lines 25-30].

In addition, Archibald explicitly teaches:

- A data information storage device having a monitoring, testing, predicting failure, and recovery capability [abstract, col. 1, par. 0001-0004 and 0013];

comprising:

- monitoring and testing performance of storage media [col. 1, par. 0013];
- relocation data in responding to a result of damage or deterioration of performance of storage device [col. 2, par. 0016].
- automatically backing up data stored on storage device (*i.e., backup/redundancy for storage device and reallocating a new region of the storage medium and*

Art Unit: 2114

*backup/redundancy for storage device) [col. 2, par. 0013  
and col.5 , claim 1].*

As per claims 13-19 and 21-23:

These claims are the same as per claims 1-9 and 11-12. The only minor different is that this claim is directed to an apparatus for monitoring performance of a storage device comprising **computer-readable program media** instead of a method for monitoring performance of a storage device as described in claims 1-9 and 11-12. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to realize that a **computer-readable program media** is a necessary item for such the storage device. Since the storage device obviously needs a means for instruction or code means resided within the computer program media for performing the data access, data access duration, data logging, data analysis, etc... Therefore, these claims are also rejected under the same rationale applied against claims 1-9 and 11-12.

As per claims 24-26:

Due to the similarity of claims 24-26 to claims 1-9 and 11-12 except for an apparatus for monitoring of a storage device comprising evaluating means, responding means, intercepting

Art Unit: 2114

means, etc... instead of a method for monitoring of a storage device comprising analyzing, responding, intercepting capabilities, etc...therefore, these claims are also rejected under the same rationale applied against claims 1-9 and 11-12.

**In addition, all of the limitations have been noted in the rejection as per claims 1-9 and 11-12.**

As per claims 28-29:

Due to the similarity of claims 28-29 to claims 1-9 and 11-12 therefore, these claims are also rejected under the same rationale applied against claims 1-9 and 11-12. **In addition, all of the limitations have been noted in the rejection as per claims 1-9 and 11-12.**

Applicant's arguments with respect to claims 1-9, 11-19, 21-26 and 28-29 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2114

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu-Minh Le whose telephone number is (571) 272-3660. The examiner can normally be reached on Monday - Thursday from 8:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)272-3645.

The Tech Center 2100 phone number is (571) 272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DIEU-MINH THAI LE  
PRIMARY EXAMINER  
ART UNIT 2114

DML

1/17/05